

#### Remarks

Claims 1-59 were pending in the application. Claims 1-5, 14, 20-23, 26-31, 34, 35, and 42-59 were rejected. Claims 8-13, 15-19, 24, 25, 32, 33, and 36-41 were merely objected to and no claims were allowed. By the foregoing amendment, no claims are canceled, claims 1, 48-51, and 55 are amended, and no claims are added. No new matter is presented.

#### Allowable Subject Matter

Applicant appreciates the indication of allowable subject matter in claims 8-13, 15-19, 24, 25, 32, 33, and 36-41.

#### Claim Rejections-35 U.S.C. 112

Claim 14 was rejected under 35 U.S.C. 112(2) for asserted vagueness. Applicant respectfully traverses the rejection.

Generally, the terms in question have a more than reasonably ascertainable meaning decided in context and are essentially unambiguous, not merely not insolubly ambiguous. See, *Energizer Holdings Inc. v. International Trade Commission*, 77 USPQ2d 1625 (CA FC 2006). See, also, MPEP 2173.05(e) (8th ed. Rev. 3, August, 2005) noting: "...If the scope of a claim would be reasonably ascertainable by those skilled in the art, then the claim is not indefinite.... Ex parte Porter, 25 USPQ2d 1144, 1145 (Bd. Pat. App. & Inter. 1992)..." See, also, Ex parte Moelands, USPQ2d 1474 (BdPatApp&Int 1987).

Also, there has been no detailed basis for establishing indefiniteness as laid out in MPEP 2173.02.

More particularly, Applicant notes MPEP 2173.05(b) Relative Terminology, and the cases cited therein. Of those cases, the present situation clearly more resembles *Orthokinetics, Inc. v. Safety Travel Chairs, Inc.*, 806 F.2d 1565, 1 USPQ2d 1081 (Fed. Cir. 1986) than it does *Ex parte Brummer*, 12 USPQ2d 1653 (Bd. Pat. App. & Inter. 1989). See, also, *Howmedica Osteonics Corp. v. Tranquil Prospects, Ltd.*, 401 F.3d 1367, 74 USPQ2d 1680 (Fed. Cir. 2005).

#### Claim Rejections-35 U.S.C. 102

Claims 1, 2, 5, 6, 20, 21, 27-29, 44-46, 48-51, and 54-57 remain rejected under 35 U.S.C. 102(e) as anticipated by Lindstrom (US6644080). Applicant respectfully traverses the rejection.

Regarding claim 1, the Office did not identify what is being asserted as the moving part. However, regarding other claims, the Office variously identifies the moving part as "the upper tool 10 or the lower tool/anvil 4" or "the gripper mechanism (40)". Office action, page 4, lines 2-5.

Reference to the upper tool 10 as the moving part is clearly reasonable and consistent with use in the art. This is first discussed.

Lindstrom involves a sheet positioning system. Col. 1, line 8. The light source and detector are positioned so that the worksheet 38 blocks the light. Col. 6, line 62. Lindstrom does not disclose illumination of a region including or around a part by illumination at one end of the part (upper tool 10). The Office references Lindstrom Figure 4 which actually shows illumination of an area behind the part (i.e. behind the bending tool). While the beam is directed from a point near the end of the part, it is used to illuminate the material and not to illuminate the part. Lindstrom's device is for locating the material by a mechanical gripper robot prior to bending and not for safety. As can be seen in Figure 4, the illumination is of the end of the work piece material 38 such that this edge position can be determined and material successfully located by the gripper prior to initiation of the bend. In order to clarify the difference, claim 1 and other independent claims have been amended to specify that the illumination is around a portion of the path including the forward edge of the tool in use. Support is found at page 6, lines 16-18 of the International Application/Publication.

Claim 1 also specifies that the light receiving means receives light that has passed through this specified region. That is, even if the illumination in Figure 4 of Lindstrom does provide incidental illumination of the part, this light illuminating the part is clearly not received in Lindstrom by the receiver. It is noted in Lindstrom that the detector 54 in Figure 4 is positioned only to receive light that has illuminated a region around the material, but not the tool.

If the lower tool 4 is moving, application of the lower tool 4 to the claimed moving part suffers the same deficiency as does that of the upper tool 10.

Yet further deficiencies are noted relative to the possible application of the robot arm or gripper mechanism 40 against the claimed moving part. The robot arm 40 is remote of any illumination.

Further, the Office action mentions, with reference to claim 2, that movement of the part

is slowed or stopped in Lindstrom, the part being the gripper mechanism 40. The claims of the present application clearly define that the “part” is that which is illuminated and which, being a part of the machine, moves creating a hazardous state requiring the use of a safety system. In this case, the part is the tool of the bending machine. The gripper mechanism 40 is not illuminated in Lindstrom, nor does it create a hazard for an operator and is not controlled for safety purposes. The gripper mechanism can therefore clearly not reasonably be considered to be “the part” as defined in claim 1. Thus, there would be no reason to configure the processing and control means to make the specified determination and responsive slowing and stopping of movement of the robot arm 40. This remains true even if it is somehow hypothesized that claim 1 is incidentally anticipated.

Regarding claims 48 and 55, there has been no application of 35 U.S.C. 112(6) as is required by *In re Donaldson*.

If there is an interpretational issue, Applicant requests a telephone interview to discuss possible distinguishing claim amendments. For example, if any claim elements are being read out, an interview is requested to discuss appropriate amendments to avoid this.

Claims 1-5, 7, 14, 22, 23, 28-31, 34, 35, 42-44, 46, 48-52, and 54-59 remain rejected under 35 U.S.C. 102(b) as anticipated by Fornerod et al. (US4772801). Applicant respectfully traverses the rejection.

Fornerod et al. disclose the illumination of an area around the piece of material to be bent which then casts a corresponding shadow. However, the device utilises a plurality of holes provided in a cover through which the received light passes. Photodiodes are used to receive the light passing through the holes. By determining which holes are shadowed by the work being bent, the plane of the work and therefore the angle of the bend can be determined.

Fornerod et al. is not described as being a system for safety. Fornerod et al. clearly identifies use to control bending angle. Col. 4, lines 36&37. Only sufficient holes are provided to determine the plane of the work being bent to calculate the bend angle. Other than this received light, no further information can be obtained regarding other obstructions which may create a shadow. The device of the present invention however illuminates the entire region and light passing through this region is received sufficient to identify any obstructions existing in the region. Specifically, the independent claims identify that the illumination of the region is such

that the boundaries of the shadowed regions within the illuminated region can be determined. This allows any obstructions such as the hand of the operator to be detected and the position of these obstructions with reference to the moving part to be ascertained. Such an arrangement is not disclosed in Fornerod et al., which can only ascertain whether some points are obstructed at any given time.

The Office action cites FIG. 4 and the second paragraph in column 3 which mentions very briefly that the device could be used as a safety system. The device of Fornerod uses rotating points of light to essentially illuminate a number of concentric circles. While FIG. 1 shows illumination of a wide area, the receiver (4) comprises a box having holes (15) through which points of light pass to the photodiodes. The box rotates to create the circles of light. Cited text simply indicates that, should any of these rings of light be obstructed prior to reaching mute points associated with each circle, the machine can be stopped. This is essentially the same as prior art systems using points of light or planar light curtains. That is, there is not sufficient illumination around a region through which the part moves to determine the boundaries of the obstruction. Further, Fornerod describes a rotating device that has associated delays making the device unsuitable for safety. Claim 1 specifies sufficient information to determine boundaries of the or each shadowed region and control movement of the part dependent on said information.

Regarding claims 48 and 55, there has been no application of 35 U.S.C. 112(6) as is required by *In re Donaldson*.

Accordingly, Applicant submits that claims 1-59 are in condition for allowance. Reconsideration and further examination are requested. Please charge any fees or deficiency or credit any overpayment to our Deposit Account of record.

Respectfully submitted,

By /William B. Slate, #37238/  
William B. Slate  
Attorney for Applicant  
Reg. No.: 37,238  
Telephone: 203-777-6628  
Telefax: 203-865-0297  
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